PROPOSED PLAN TO REDUCE CONTAMINATION NEAR THE INJECTION WELL AND SURROUNDING GROUNDWATER AT TEST AREA NORTH

Public Meeting
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6:30 p.m.

PANEL MEMBERS:

Lisa Green, DOE-Idaho
Howard Blood, U.S. EPA
Shawn Rosenberger, IDHW
Donna Nicklaus, DOE-Idaho
Jerry Zimmerle, EG&G
Dan Harelson, DOE-Idaho
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MODERATOR: For purposes of traffic direction here, I would like to identify that the second topic on the agenda will be Ron Lane who will be replacing Shawn on the panel. Ron is an environmental hydrologist for the Division for Environmental Quality and he is located out of the Boise office. He is the project manager for the State for cleanup activities at the Test Area North.

With that I'll introduce Jerry Zimmerle who will be giving a presentation. He's the EGG project manager for the injection well and groundwater remediation at Test Area North. To his right is Dan Harelson, who is the DOE manager for all cleanup activities at the Test Area North.

MR. ZIMMERLE: Thank you, Lisa.

I would like to thank you for coming here tonight. I appreciate audience attendance. As Lisa said, my name is Jerry Zimmerle and I'm the project manager for the interim action on the injection well at the Test Area North.

What I would like to do this evening is essentially give you a visual presentation

of our proposed plan, something that will give you a little different look at what we're planning to do and allow you to come back and give us feedback and comments so we'll understand your concerns.

Now, the Test Area North is located in the northern portion of the Idaho National Engineering Laboratory. It's about 15 miles west of Terreton and Mud Lake. When I first got involved in this project, one of the things I wanted to know is how big was the problem that we had with the contamination plume.

As you can see, the contaminants from the injection well are still roughly within the area of the Test Area North, they've gone in the general direction of the groundwater flow in this area, which is to the southeast. And what will happen over time is they will gradually begin to move down and then go to the southwest, which is the groundwater flow for the rest of the Idaho Engineering Laboratory.

What I want to do is give you some of the basic background information we have on this injection well. Now, TAN consists of four major facilities, but we're mainly interested

in this facility in the center, the technical support facility, because it was from here that these contaminants were injected into the aquifer.

The injection well itself is located in the southwest corner of the Technical Support Facility. It receives different types of wastewaters which contain radionuclides, organics and metals. The well itself was used from 1955 to 1972 and in the 37 or so years since the well began operation, the contaminant plume has moved about a mile and half to the southeast, and that's about a half mile wide.

There are two things that we want to do with this contamination. The first thing is the interim action we're talking about tonight. What we're going to do is concentrate that interim action right in this area within about a quarter of a mile to a half mile away from the injection well, because that's where the majority of the contamination still lies.

The second thing we want to do is a remedial investigation feasibility study. Now, this is going to be described in detail by Mr. Dan Harelson from the Department of Energy

later on this evening.

In a quick summary, what we're looking at is putting a few wells deeper into the aquifer to try to find out how deep the contamination goes, and also give us a better idea of how the aquifer itself performs with the groundwater flow.

What I want to do now, since I've given you a horizontal view of this contamination plume, is to look at what is happening underneath the surface. This is a picture going southwest from the injection well. The injection well itself is twelve inches in diameter, it goes down about 300 feet. What we've found is that this injection well or that most of contamination is still roughly within the general area of the injection well itself.

The water table is right about 200 feet, so we have roughly 100 feet of pipe which is open to the aquifer and allows the wastewater to move out. As you get farther down the contamination plume which is southeast, what you find is that contamination levels drop by as much as 20 times below the

levels we find in the injection well.

Now, the wastewaters that went down this injection well contain, as I said, different types of organics, metals and radionuclides. All these different contaminants are going to be handled under the remedial investigation. But for the interim action, we've taken and focused things more on four contaminants that exceed drinking water standards and also have the highest levels of contamination in the water.

These four contaminants are strontium, which is a radionuclide; lead, which is a metal; tetrachloroethylene and trichloroethylene, which are both organic contaminants. Each of these four pictures shows you the drinking water which is at the boundary of the contamination plume for drinking water standards and also the higher water levels of contamination that we find in the water itself.

One key thing that we're going to implement -- or explore would be a better word -- for the interim action is to take advantage that these contaminants are still near

injection wells, and we'll be able to go and try to remove those and have more of an impact at this time.

One key thing, of all the contaminants, we have found only trichloroethylene has moved as far as a mile and a half to the southeast.

Now, exactly why we're doing the interim action, the primary reason is because we want to prevent further degradation of the aquifer. We want to get after those contaminants that are still around the injection well itself and we want to begin to take them out. We want to reduce contaminant levels, and in the long run what this will help us do is reduce the complexity and the cost of any future actions we take at this site.

The action and the remedial investigation are going to be going on side by side, parallel for the next two and half to three years. And all along this time we will use the interim action to feed information down into the remedial investigation. What this will do is it will help us improve our decision-making process in our final

determination of the remedial investigation.

We studied a number of different alternatives under the interim action before we settled on these four. Alternative 1 is a no action alternative, we would let the contaminants continue to move out into the aquifer.

Alternatives 2 through 4 would bring up groundwater under the aquifer and treating it with a system to remove the contaminant levels. We believe that Alternative 2 is our preferred alternative using air stripping and carbon absorption.

I'm going to go over these alternatives in more detail in the next few minutes. One thing I wanted to go into first was on the no action alternative. This alternative, as you can see in the proposed plan, is not considered in any great detail. We decided that it did not meet the threshold criteria for the protection of human health and the environment and conformance of legal requirements because it would not do anything about the contaminants moving out into the aquifer. So we decided that we can propose

that this alternative not be considered in this interim action.

Each of the other alternatives meets this threshold criteria. When I describe them in more detail, I'll show you why. First of all, I would like to tell you how exactly we're going to apply this interim action. The first thing we're going to do is build on some original work we did on the injection well itself. Back in January of 1990, the lower 55 feet of the injection well was filled with a concentrated sludge. We took that sludge out and put it into drums for disposal. Next we went and we flushed the well itself. We began to bring some of the contaminants over just a little farther out of the ground and we treated that water.

As I said before, the interim action is going to cover this area roughly within a quarter of a mile to a half mile away from the injection well. What we propose to do first is a series of pump tests on the well to give us some idea of how much contamination still remains in the aquifer, then we'll go into more of a regular operation and continually pull

water out and treat that for disposal. We are also looking at using these other wells in the immediate vicinity of the injection well to help reduce the overall levels of contamination further away.

All this treated water is going to be disposed of in the TAN disposal pond, which is an existing pond at the TAN facilities. Now, each of the three alternatives that we've considered under the interim action have common features, all of them involve taking water out of the ground and running it through a filter system.

In this case we would use a tank to allow us to take out any solids that might be in the water, any sand or grit or something like an oil filter in your car where the solids would be captured and water would continue on.

This water then would go into different types of treatment alternatives, primarily to remove organic contamination. From there we would have the lead and the strontium removed by ionic exchange. Ionic exchange is similar to a water softener in your home. The metal and strontium would run over

little beads of ionic exchange material and be replaced with typically sodium, hydrogen or something similar. The treated water would then go into a disposal pond.

Over time these ionic exchange beads will gather more of the radioactive material. They will become a radioactive waste that we'll have to dispose of. We have not determined the final disposal option for this, but when we select the final action under the Record of Decision, that will be spelled out.

Alternative 2, as I mentioned before, is our preferred alternative. We are looking at using an air stripper system to take the water that comes out of a filter. An air stripper is essentially a large column full of plastic rings. The water comes in on the top and gets spread out and goes into thinner and thinner layers. By moving air back in the opposite direction, what happens is the organics, just by their chemical nature, move out of the water and into the air.

We'll then take that air stream, run it through a carbon absorption system where the exact reverse process will occur, the organics

will move into the solid carbon particles that will allow us to discharge the air into the atmosphere. This carbon, as it becomes full of the organics, will become a hazardous waste. What we're considering doing is sending it to an EPA facility hopefully to recycle it and bring it back so we can reuse the carbon.

There are two reasons why we like this alternative. The first one is we can separate out the hazardous and radioactive components of the waste, this makes the waste easier to get rid of and it's a little bit less expensive.

The second reason is that air stripping technology is fairly common. It's widely used across the country, it's fairly easy to design and operate. One of the key things we wanted to do under this interim action is to get out and get something done so we can show some results back to the remedial investigation.

Under Alternative 3 we would do something different. The air stripping is gone, the carbon absorption system has been moved down. What we do is the water is

actually treated by the carbon. In this case the organics come out again, but we also get some of the lead and strontium out. In this case this makes the carbon mixed waste, which is a combination of hazardous radioactive contamination.

Now, this mixed waste is much more difficult to get rid of, much more expensive to get rid of. We would prefer not to have to deal with any of it. So we're selecting our options to limit generation of this type of waste. This is why Alternative 3, even though it's fairly simple to operate and design, it is not a preferable alternative.

Alternative 4, we use something slightly different. We use an ultraviolet light combined with chemicals that attack the organics, break them down into their basic components, which in this case are water, carbon dioxide and salt. This has some obvious advantages. We do not produce any mixed waste or hazardous waste, but the system itself is not a proven technology and it's also more difficult to design and operate. And for this reason we decided that Alternative 4 was not as

acceptable an option as Alternative 2.

In the first presentation this evening we went through the nine CERCLA criteria, which are listed in the proposed plan. The first two criteria are threshold criteria. And all these alternatives meet those threshold criteria: Protection of human health and environment, performance within legal requirements.

Also, the no action alternative, again, because it allows contamination to continue to move out and doesn't reduce the problems with exceeding drinking water standards in the water, was considered not to be a viable option to pass the threshold criteria.

These five criteria are the balancing criteria. What we did is we started out by looking at mixed waste generation, our Number 1 consideration. In this case both Alternative 2 and Alternative 4 do not produce a mixed waste. They received a good grade. Alternative 3 does produce a mixed waste, so it received a poor grade.

Then we went into design. Under

implementability of the systems, both Alternative 2 and Alternative 3 are fairly easy to design and implement, where Alternative 4 will take a longer design study which will make it more difficult to get designed properly. So that received a poor grade.

Then we looked at short-term and long-term effectiveness. In this case we felt that Alternative 2, because it's simpler to operate and because we have less waste that we will be handling, is a better alternative than Alternative either 3 or 4.

The last two criteria we need to evaluate are the modifying criteria, State and community acceptance. We worked with the State all along on this process. They agree that Alternative 2 is the preferable alternative.

Public acceptance is why we're here tonight. We would like to get your comments on this plan, not only on Alternative 2, but also on Alternative 3 and 4 and also the decision process that we've been going through so we can incorporate your comments in our decision-making process.

In summary, Alternative 2 was chosen

because it does not produce a mixed waste, and because it is also a proven and reliable technology that we feel we implement and start getting results and reduce the level of contamination in the groundwater.

Now, to give you an idea what type schedule we're going to be on. The public comment period ends March 13th. We'll take your comments at that point and put them into Responsiveness Summary, then finally into a Record of Decision that will describe how your comments were used to help us make the final decision on which alternative to use.

This Record of Decision will also tell you which final alternative was selected and give you the legal requirements we have to meet under that alternative. By next spring we're looking at completing a remedial design and actually turning on the pumps, if one of the pump and treat is selected, in the summer of '93.

That concludes my presentation.

MODERATOR: Thank you, Jerry. We'll be following the same process here. Now, we'll have a phase where we'll answer your questions

about Jerry's presentation and then any other questions you might have about this interim action.

Again, if you'd like to write your questions on note cards and pass them to the end of the aisle, Reuel will bring them up for the panel members to address. If you'd like to ask your questions orally, please speak loudly from your seat so that the court reporter can hear you. If you have a soft voice, I would like to ask for you to use the microphone so that we can all hear the questions.

Do we have any questions of clarification on Jerry's presentation?

MR. BJORNSEN: I have a couple questions. One is since there are both hazardous organic chemicals as well as radionuclides present in the groundwater, which fraction is considered at this point the greatest hazard, and which fraction is actually in the greatest concentration?

MR. ZIMMERLE: The organic contamination, specifically the trichloroethylene has the highest concentration level of the four contaminants we're looking

at. It's also the one that has gone the farthest, a mile and a half, everything else is still within a quarter mile or within a half mile of the injection well.

MR. BJORNSEN: As far as the radionuclides, by whatever method they are extracted, what would be the disposal of those?

MR. ZIMMERLE: That would be determined under the Record of Decision. I can't give you a specific answer right now.

MR. BJORNSEN: Another question I would have would be that I would assume that all of this is being subcontracted out by the DOE, the actual cleanup and the pumping, or is this actually going to be a DOE project?

MODERATOR: DOE will manage the project. We will use contractors and subcontractors to actually carry out the project. So the actual in-the-field contractor putting up the treatment system, is that what you're referring to?

MR. BJORNSEN: Yeah, maintaining and running the system itself.

MODERATOR: That will likely be contracted out through our on-site redesign or

remedial contractor at the INEL. Currently Morrison-Knudsen is acting in that capacity. So at this point in time it would either be M-K or a contractor that they subcontract out to do that, and that's the likely outcome. But again, that would be determined later on during the remedial design and remedial action portion.

MR. BJORNSEN: As a follow-up to that, is this something that has been done before somewhere else or are we breaking new ground here? Have we actually, we as a country, treated water in this manner before?

MODERATOR: In DOE's opinion this project represents a likely opportunity to use something that is pretty much off the shelf utilized elsewhere in the country. The preferred alternative that we have chosen is that type of technology.

MODERATOR: Any other questions? Reuel has your card. Yes, sir.

AUDIENCE: In your reverse flushing technique, how many hundreds of thousands of gallons or millions of gallons do you anticipating pumping?

MR. ZIMMERLE: You mean when we pull the water out of the ground?

AUDIENCE: Right.

MR. ZIMMERLE: I can't give you a number off the top of my head. It comes out to 50 gallons per minute for 24 hours a day, five days a week for up to two years, and at that point in time the interim action will feed back into the remedial investigation, which will in itself conclude with a Record of Decision, and we'll decide whether to continue the action at that time.

AUDIENCE: What does the test log on the initial bore hole show that the flow underground would give?

MR. ZIMMERLE: I can't give you that answer. I can get an answer for you if you'd like to write that one down and leave your name and number, and I will get back to my technical experts, the hydrogeologists.

AUDIENCE: Would the organics be there in high enough level to make it worthwhile to try to recycle it?

MR. ZIMMERLE: No, the part per

million range, one part per million and that's --

AUDIENCE: Lower.

MR. ZIMMERLE: Right, in general. I won't say that the activated carbon itself may not get at high enough levels that you could get something out of there, but I won't guarantee it.

I have a card here.

"Is it true that safe drinking water standards exist a mile and a half from the well?"

Based on the data that we have at this time, the boundary of the plume is as I showed on the figure, a mile and half to the southeast and about a half mile wide, and we do use safe drinking water standards to draw that plume down.

The second question is:

"After 37 years this is a surprising short distance. Has the rate of migration diminished over the past ten years?"

In the TAN area itself, the

groundwater flow is much less than the rest of the Idaho National Engineering Laboratory, and TAN is roughly a foot per day, which is anywhere from three to ten times less than the rest of the Idaho area itself.

And so that's exactly why things have gone such a short distance.

AUDIENCE: When the well was drilled, did someone know that they were injecting into a perched well table above the Snake River Aquifer and that it would probably stay there?

MR. ZIMMERLE: Well, the water itself is not in a perched water table, it is in the actual aquifer, but the whole purpose was to drill down deep enough into the aquifer to put the contamination into the groundwater.

AUDIENCE: I have a newsletter here that shows a perched water table in the Snake River Aquifer about 200 feet below.

MR. ZIMMERLE: Is that Test Area North or is this -- if you could show me that, I'll see if I can clarify that for you.

MODERATOR: There are some perched water tables underneath the INEL that are above

the Snake River Plain Aquifer, but I don't believe there is one associated with this injection well.

MR. ZIMMERLE: Not that I'm aware of.

AUDIENCE: Maybe it's symbolic for another area.

MR. ZIMMERLE: This is for the test reactor area, which is southwest of the Test Area North, 15 to 20 miles southwest.

MODERATOR: Reuel?

MR. SMITH: Lisa, you might not know that the gentleman is referring to a copy of the INEL Reporter, which was the most recent issue. We have other copies back here.

The purpose of that article is to give you an update on one of projects that was presented here in Boise last August. So there has been progress made on that project.

MODERATOR: That project was with remediation of a contaminated perched water zone above the Snake River Plain Aquifer, the test reactor area.

Any other questions for Jerry or any of us up here regarding the Test Area North interim action on the injection well?

MR. BJORNSEN: I have another question. The disposal pond that all of this water will be pumped into, the water, that's clean water, I assume?

MR. ZIMMERLE: Correct.

MR. BJORNSEN: Now, that clean water, I assume, is going into an area that does not contain any hazardous or radionuclides in the soil --

MR. ZIMMERLE: Right.

MR. BJORNSEN: -- existing, so any downward migration of the water would not take with it?

MR. ZIMMERLE: We're planning to berm off the unused portion of the pond. They only used ten percent or so of the pond in its current form and all in the eastern end. We're going to create a new berm and use the western end that has been not been used before.

MR. BJORNSEN: So this soil in that area has been tested and is considered clean?

MR. ZIMMERLE: We had not tested it at that point, but no contaminated water has been spread over that area.

MODERATOR: Jerry, you haven't tested

it under this project, but I believe that soil samples have been taken, haven't they, under previous sampling efforts on the pond?

MR. ZIMMERLE: In the eastern end.

MODERATOR: And the rest of the pond has never received contaminated water?

MR. ZIMMERLE: Right.

MODERATOR: Any other questions? Well, you'll have an opportunity to ask more questions if they come up on the general subject of TAN contaminated groundwater or TAN in the third topic, so I hope you'll think of some more questions to test these folks here.

But in the meantime, let's begin the portion of the session where we formally receive oral comments on the proposed plan for the Test Area North proposed plan for cleanup of contaminated groundwater in the injection well at Test Area North.

Reuel, could you tell me how many people we have signed up to provide oral comments on this?

MR. SMITH: The same two.

MODERATOR: Any additional folks decide they would like to provide oral comments

also? Okay. So we have three people.

Mr. Bjornsen, please lead off.

MR. BJORNSEN: Fritz Bjornsen, Boise, Idaho, representing the Snake River Alliance. I have several comments, a couple general comments first. One, that we appreciate having these hearings and being able to offer our input both into the scoping process and the overall cleanup process out there.

Additionally, although there was some question from some of my members about combining the ordnance part with the Test Area North injection well cleanup part, I think that it's to our benefit to reduce the number of hearings where possible, and the idea of having hearings is the sort of thing that is acceptable to us.

I have some questions or comments, one with respect to the pond disposal of the clean water. As part of the scope, I would like to see that the pond and the soil beneath the pond be retested if necessary or test results be made available to show that the migration of clean water effluent from their process does not cause the migration of

existing radionuclides or hazardous materials back into the aquifer.

Additionally, the document that we have here does not address the final disposition of the waste, resins and filtered sediment, particularly that fraction that is contaminated by radionuclides, and I feel that it's important that we have specifics as to the final disposition of this radioactive waste.

We are also concerned about the qualifications of the subcontractor that actually performs the work. We would hope that the subcontractor would be one that has shown experience in this field and has a good track record as far as that goes.

Additionally, we would hope that knowing there is a good labor pool, particularly in the area of people qualified in this area, that the subcontractor would be directed to look towards local hiring where possible and where qualified people would be available before looking to outside Idaho or outside the economic area for their employees.

With respect to the air stripper technology, where it's been stated several

times that this is off-the-shelf technology, it is still my understanding that it would be a custom design, and I think that more information is needed as to the air stripper itself and just how much of it is off the shelf and how easy it will be to modify these supposedly off-the-shelf technologies to the specifics of this site.

I think that just about does it. Thank you.

And that my comment from the early session, again, I think that we need to know how clean is clean, that we need to have rather specific information as to what the DOE considers acceptable levels, remaining levels of both radionuclides and organic and organic chemicals in the water at the end of this, when the cleanup is cleaned up.

MODERATOR: Thank you. Do we have another volunteer?

MR. SALI: My name is Gregory Sali, and I live here in Boise. I would like to make a comment on the first portion of the ordnance.

It seems to me that the project has not been completely defined. You have

addressed the area or the various munitions at the site where people work, and it certainly should be the first area that you should address, but apparently there are a lot of munitions elsewhere, and that should be defined and put within the scope of this project. The problem exists, how much munitions are out there. We don't know. Some of it is off the boundary of the INEL, but nonetheless it was a defense project, and I feel it should be put under this particular project of cleanup.

I feel another area that should be addressed in your subsequent meetings is the subject of incinerators. Incinerators are rather simple and have been used by man to reduce metals, et cetera, for a long, long time, we're talking thousand of years, and the number of incinerators around is very large. They may not have been specifically permitted for this particular project, but certainly if we can raise the temperature of the material passing through to a couple thousand degrees, then certainly we could take care of all of the organic materials and meet any criteria that the EPA has as to air quality, et cetera.

You should include that so that we don't leave an unknown out here for people to think that, well, incinerators is some method of technology that nobody knows about and so forth. As you've described here tonight, most of the technology that you're talking about is off the shelf, and therefore we should stay with what we know and what technology we can do.

I agree with the gentleman from the Snake River that the contract should be local and within the state. And that I feel there are qualified people in many areas that could handle your cleanup job both on the munitions and on the cleanup of water.

Fifty gallons a minute isn't very much. My guess is that you will probably find that if you're going to really back-flush that particular area and pull out all the contaminants, that you're going to want to increase that significantly, maybe by as much of a factor as ten times, then I think you'll be able to pull out more of the pollutants that are down there now and do a faster job of cleanup. You may have to drill a couple of

wells.

In addition, in order to put clean water back down and back-flushing or assist in the back-flushing operation.

Again, I appreciate the opportunity to speak and bring these thoughts on the subject. I think that the INEL is getting better at doing their job, getting public input. Thank you.

MODERATOR: Thank you, Mr. Sali.

I believe according to Reuel's tally, we have one more person who had signed up to speak on the project. Is that person still here?

MR. BJORNSEN: That may have been Deanha Messenger, who has since left.

MODERATOR: I hope that she'll submit written comment.

With that we'll close the period for receiving oral public comment on the TAN Injection Well Proposed Plan.

Reuel, did you want to take a five minute break here?

MR. SMITH: We'll take five minutes and we'll change speakers.

MODERATOR: We'll take five minutes to change the logistics, and we'll get right after the third topic. Thank you very much.

(A recess was taken.)